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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,946 23353	08/16/1999	MASANORI NAKAMURA	P7318-9007	2 O
	HMAN & GRAUER PLL	EXAMINER		
LION BUILDING 1233 20TH STREET N.W., SUITE 501			GOFF II, JOHN L	
WASHINGTON, DC 20036		•	ART UNIT	PAPER NUMBER
			1733	
			DATE MAILED: 07/17/2003	

Please find below and/or attached an Office communication concerning this application or proceeding.

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			Application No.	Applicant(s)		
" Offic Action		Action Cummons	09/355,946	NAKAMURA ET AL.		
	Onic /	Action Summary	Examiner	Art Unit		
			John L. Goff	1733		
Period fo		IG DATE of this communication	app ars on the cover shee	et with the correspondence address		
THE I - Exter after - If the - If NO - Failu - Any r	MAILING DA nsions of time may SIX (6) MONTHS period for reply sy period for reply is re to reply within the eply received by the	TATUTORY PERIOD FOR RETURN THE OF THIS COMMUNICATION IN THE PROVISION OF T	ON. R 1.136(a). In no event, however, man. a reply within the statutory minimum of eriod will apply and will expire SIX (6) statute, cause the application to become	ay a reply be timely filed of thirty (30) days will be considered timely. MONTHS from the mailing date of this communication. ne ABANDONED (35 U.S.C. § 133).		
1)🖂	Responsive	e to communication(s) filed on	30 April 2003 .			
2a) <u></u>	This action	is FINAL . 2b)⊠	This action is non-final.			
3)□	closed in a	ccordance with the practice un		matters, prosecution as to the merits is 5 C.D. 11, 453 O.G. 213.		
l '	on of Claim					
·		5 and 7-12 is/are pending in th				
4a) Of the above claim(s) <u>1-4,9 and 10</u> is/are withdrawn from consideration.						
		is/are allowed.				
6)⊠ Claim(s) <u>5,7,8,11 and 12</u> is/are rejected.						
7)		is/are objected to.				
8)∐ Applicati	Claim(s) ion Papers	are subject to restriction a	nd/or election requirement			
9) 🗌 🤈	The specifica	ition is objected to by the Exar	miner.			
10) 🔲	The drawing(s) filed on is/are: a) a	accepted or b) objected to	by the Examiner.		
	Applicant m	ay not request that any objection	to the drawing(s) be held in a	beyance. See 37 CFR 1.85(a).		
11) 🗆	The proposed	d drawing correction filed on _	is: a)∏ approved b)[disapproved by the Examiner.		
	If approved,	corrected drawings are required	in reply to this Office action.			
12) 🗌	The oath or o	leclaration is objected to by the	e Examiner.			
Priority ι	ınder 35 U.S	.C. §§ 119 and 120				
13)⊠	Acknowledg	ment is made of a claim for fo	reign priority under 35 U.S	.C. § 119(a)-(d) or (f).		
a)	⊠ All b)□	Some * c) None of:				
	1. Certifi	ed copies of the priority docum	nents have been received.			
	2. Certifi	ed copies of the priority docum	nents have been received	in Application No		
* 5	 3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 					
14) 🗌 A	cknowledgm	ent is made of a claim for don	nestic priority under 35 U.S	S.C. § 119(e) (to a provisional application).		
1		islation of the foreign language nent is made of a claim for don				
Attachmen	-		•			
1) Notice 2) Notice 3) Inform	e of References e of Draftsperso nation Disclosur	Cited (PTO-892) n's Patent Drawing Review (PTO-948 e Statement(s) (PTO-1449) Paper No	5) Notic	riew Summary (PTO-413) Paper No(s) e of Informal Patent Application (PTO-152)		
U.S. Patent and T PTO-326 (Re		Offic	e Action Summary	Part of Paper No. 20		

DETAILED ACTION

This action is in response to Amendment C filed on 4/30/03. All previous objections to 1. the specification have been overcome. In view of applicants amendment the 35 USC 102 rejections over Rasmussen and Caiola et al. are withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found 2. in a prior Office action.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/30/03 has been entered.

Claim Rejections - 35 USC § 103

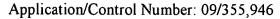
This application currently names joint inventors. In considering patentability of the 4. claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen (U.S. Patent 3,471,353) in view of either Frese (U.S. Patent 3,514,359) or Iverson (U.S. Patent 2,628,180).

Rasmussen discloses that it is known to bond two oriented polyolefin (e.g. polyethylene, polypropylene, etc.) sheets or films using a method comprising depositing a solvent on a surface of the sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Column 2, lines 4-30 and Column 4, lines 8-13). Rasmussen is not limited to any particular solvent. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the solvent taught by Rasmussen a solvent comprising a polymerizable monomer (e.g. styrene) and peroxide as solvents of this type were well known in the art for bonding two polyolefin sheets as shown for example by either one of Frese or Iverson.

Frese discloses bonding two polyolefin sheets or foils using a method comprising depositing a solvent on one or both sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article. Frese teaches the solvent comprises a polymerizable monomer (e.g. styrene) and peroxide wherein the peroxide is added to increase the speed of polymerization (Column 1, lines 36-38 and 52-72 and Column 2, lines 1-17 and 42-51). Iverson discloses bonding a polystyrene body to another substrate using a solvent bonding process wherein the solvent comprises styrene monomer and peroxide (Column 1, lines 1-19 and 36-39 and Column 3, lines 56-60).



As to the oriented polyolefin sheets taught by Rasmussen having an average coefficient of linear expansion (LEC) not exceeding 5 x 10^{-5} ($^{\circ}$ C) in the 20-80 $^{\circ}$ C range, it is noted the oriented polyolefin materials employed in Rasmussen are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 9, lines 7-11). Further, applicants specification indicates that <u>unoriented</u> polyolefins have an average LEC of greater than 5 x 10^{-5} ($^{\circ}$ C) and that orientation of such polyolefins results in an average LEC value not exceeding 5 x 10^{-5} ($^{\circ}$ C) (Page 7, lines 13-19).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen and either Frese or Iverson as applied above in paragraph 5, and further in view of Ikenaga et al. (U.S. Patent 4,717,624).

Rasmussen and either Frese or Iverson as applied above teach all of the limitations in claim 8 except for a teaching on using oriented polyolefin sheets that comprise a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the oriented polyolefin sheets taught by Rasmussen as modified by either Frese or Iverson oriented films comprising a plurality of stacked sheets wherein an oriented sheet having minus values for the average coefficient of linear expansion is covered by an oriented or unoriented sheet having a plus value for the average coefficient of linear expansion as suggested by Ikenaga et al. in order to form laminated composites with improved dimensional stability.

Ikenaga et al. are directed to composites (including polyolefin composites) having

improved dimensional stability comprising a plurality of stacked sheets wherein oriented sheets

having minus values for the average coefficient of linear expansion are covered by oriented or

unoriented sheets having plus values for the average coefficient of linear expansion (Column 1,

lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and

Column 12, lines 41-53).

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Rasmussen and either Frese or Iverson as applied above in paragraph 5, and further in view of

Drake (U.S. T888,001).

Rasmussen and either Frese or Iverson as applied above teach all of the limitations in

claims 11 and 12 except for a teaching on heat treating the oriented polyolefin sheets before

bonding. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to heat treat the oriented polyolefin sheets taught by Rasmussen as modified by either

Frese or Iverson before bonding as it was well known in the art as shown for example by Drake

to heat treat a polyolefin sheet so that it better adheres to additional sheets/substrates.

Drake discloses bonding two polyolefin sheets/films together using a method comprising

heat treating (e.g. by flame treatment, electrical discharge treatment, etc.) a surface of each film

followed by applying pressure and heat to bond the two sheets together to form a polyolefin

article (Figure and Abstract).

8. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frese in

view of Rasmussen.

Frese discloses bonding two polyolefin sheets or foils using a method comprising depositing a solvent on one or both sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article. Frese teaches the solvent comprises a polymerizable monomer such as styrene and peroxide wherein the peroxide is added to increase the speed of polymerization (Column 1, lines 36-38 and 52-72 and Column 2, lines 1-17 and 42-51). Frese is silent as to using oriented or unoriented polyolefin sheets. It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use as the polyolefin sheets taught by Frese oriented polyolefin sheets as it was well known in the art to bond two oriented polyolefin sheets together using a solvent bonding process as shown for example by Rasmussen.

Rasmussen discloses that it is known to bond two oriented polyolefin (e.g. polyethylene, polypropylene, etc.) sheets or films using a method comprising depositing a solvent on a surface of the sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Column 2, lines 4-30 and Column 4, lines 8-13).

As to the oriented polyolefin sheets taught by Frese as modified by Rasmussen having an average coefficient of linear expansion (LEC) not exceeding 5×10^{-5} (/°C) in the 20-80 °C range, it is noted the oriented polyolefin materials employed in Frese as modified by Rasmussen are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 9, lines 7-11). Further, applicants specification indicates that <u>unoriented</u> polyolefins have an average LEC of greater than 5×10^{-5} (/°C) and that orientation of such polyolefins results in an average LEC value not exceeding 5×10^{-5} (/°C) (Page 7, lines 13-19).



9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frese and Rasmussen as applied above in paragraph 8, and further in view of Ikenaga et al.

Frese and Rasmussen as applied above teach all of the limitations in claim 8 except for a teaching on using oriented polyolefin sheets that comprise a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the oriented polyolefin sheets taught by Frese as modified by Rasmussen oriented films comprising a plurality of stacked sheets wherein an oriented sheet having minus values for the average coefficient of linear expansion is covered by an oriented or unoriented sheet having a plus value for the average coefficient of linear expansion as suggested by Ikenaga et al. in order to form laminated composites with improved dimensional stability.

Ikenaga et al. are directed to composites (including polyolefin composites) having improved dimensional stability comprising a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion (Column 1, lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and Column 12, lines 41-53).

10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frese and Rasmussen as applied above in paragraph 8, and further in view of Drake.

Frese and Rasmussen as applied above teach all of the limitations in claims 11 and 12 except for a teaching on heat treating the oriented polyolefin sheets before bonding. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to heat treat the oriented polyolefin sheets taught by Frese as modified by Rasmussen before bonding as it was well known in the art as shown for example by Drake to heat treat a polyolefin sheet so that it better adheres to additional sheets/substrates.

Drake discloses bonding two polyolefin sheets/films together using a method comprising heat treating (e.g. by flame treatment, electrical discharge treatment, etc.) a surface of each film followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Abstract).

Response to Arguments

11. Applicant's arguments with respect to claims 5, 7, 8, 11, and 12 have been considered but are most in view of the new ground(s) of rejection. Applicant argues "although Iverson teaches that polymerizable monomers can be used to dissolve sheets of polyolefins. Iverson does not teach that such monomers would be combined with a peroxide compound". It is noted Iverson teaches using peroxide with the polymerizable monomers when it is desired to make a very hard joint (Column 3, lines 56-60).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L. Goff whose telephone number is 703-305-7481. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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John L. Goff July 9, 2003 JEFE H. AFFERBUT PRIMARY EXAMINER GROUP 1300